

WHAT IS CLAIMED IS

1. A wet etching apparatus comprising:
a chemical-solution supply component for supplying a chemical
5 solution on a film to be processed on a substrate, and
an ultraviolet-light radiating component for radiating
ultraviolet light to the film through the chemical solution.
2. The wet etching apparatus according to claim 1, wherein the
10 ultraviolet-light radiating component radiates ultraviolet light
having an energy higher than a binding energy of constituent molecules
of the film.
3. The wet etching apparatus according to claim 1, further
15 comprising a drive unit for moving the ultraviolet-light radiating
component, wherein the ultraviolet-light radiating component is moved
at a location 2 mm to 5 mm above a surface of the film when radiating
of the ultraviolet light.
- 20 4. The wet etching apparatus according to claim 1, wherein the
ultraviolet-light radiating component comprises:
a light source generating the ultraviolet light; and
a storage component for accommodating the light source and
having a light-transmitting window facing the film, and
25 wherein the chemical-solution supply component has a nozzle
disposed at a side of a gap between the light-transmitting window
and the film, the nozzle continuously supplying the chemical solution
in the gap.
- 30 5. The wet etching apparatus according to claim 4, further
comprising a stage for holding the substrate, wherein a pair of guides

are formed on the stage so as to be parallel to the nozzle and sandwich the substrate.

6. The wet etching apparatus according to claim 4, wherein a
5 layer of a surface-active agent is formed at a surface of the light-transmitting window contacting the chemical solution.

7. The wet etching apparatus according to claim 4, wherein the chemical-solution supply component comprises:

10 a switching valve connected to the nozzle through a pipe and for switching supply of the chemical solution or supply of ultra-pure water;

a pipe for supplying the chemical solution and connected to the switching valve; and

15 a pipe for supplying ultra-pure water and connected to the switching valve.

8. A method for wet etching of a film, comprising:

20 supplying a chemical solution on a film to be processed on a substrate; and

radiating ultraviolet light to the film through the chemical solution.

9. The method for wet etching according to claim 8, wherein
25 supplying a chemical solution and radiating ultraviolet light are simultaneously performed.

10. The method for wet etching according to claim 8, wherein
30 the ultraviolet light having an energy higher than the binding energy of constituent molecules of the film is radiated.

11. The method for wet etching according to claim 8, wherein the film is a high-k dielectric film performed an annealing treatment.